

REMARKS

Claims 1-24 were pending in the case, and all claims stand rejected. Upon entry of this Amendment, new Claims 25-40 will be added, and Claims 1-40 will then be pending.

Claims 1, 2, 4, 9, 10, and 12 stand rejected under 35 U.S.C. Section 102(b) as anticipated by, or in the alternative, obvious over CABA Abstract 78:644467 (hereinafter the "CABA Abstract").

Claims 1-24 are rejected under 35 U.S.C. Section 103(a) as obvious over Kirk-Othmer Encyclopedia of Chemical Technology (hereinafter Kirk-Othmer).

For convenience, a brief review of the invention is presented. The present invention is directed to a process for inhibiting the growth of microorganisms in pesticide solutions. Claims 1-8 claim the invention as a process for inhibiting the growth of microorganisms in a pesticide solution comprising the step of adding a biocide combination to the solution, which biocide combination includes peracetic acid, hydrogen peroxide and water. Claims 9-16 claim the invention as a process for inhibiting microorganism growth in a pesticide solution comprising the step of applying the biocide combination to a container containing a pesticide. Claims 17-24 claim the invention as a process for inhibiting microorganism growth comprising the step of treating a surface that is in contact with the pesticide solution.

At the outset, as a point of procedure, Applicants point out that the portion of Kirk-Othmer supplied by the Examiner did not include the publication page, and Applicants are thus not sure if Kirk-Othmer predates the present application. The Examiner's PTO 892 form indicates the reference was published in 1993, but Applicants would appreciate confirmation of that with a copy of the publication page of the Kirk-Othmer reference to ensure the accuracy of the PTO 892 Form.

Basically, in this case, the Office Action cites two references that have absolutely nothing to do with the art of pesticide solutions. Kirk-Othmer is a multi-volume encyclopedia of chemical technology that happens to devote a portion of itself on its pages 256 to 257 to peracetic acid generally. The CABA Abstract simply describes an attempt by E. Iovchev et. al., to determine the sensitivity of *T. faviforme* to various disinfectants. Neither reference suggests or even remotely hints at using

the claimed biocide combination either in a pesticide solution (Claims 1-8), on the pesticide solutions container (Claims 9-16) or on a surface that will be in contact with the pesticide solution (e.g. in the plant production piping etc., Claims 17-24).

The arts are not analogous, and neither references, alone or in combination is properly cited against the present invention. They are not associated with the field of Applicants' endeavor and are not reasonably pertinent to the particular problem with which the inventors were concerned. See MPEP Section 2154 (IX) that prohibits the use of these references in this way.

In the crop science arts, maintaining the stability of pesticide solutions is a major problem. That is the problem with which the inventors are concerned. Each year, millions of pounds of pesticide solution must be discarded simply because, as explained in the specification at page 1, microorganisms grow in the pesticide solution. While it may be counter-intuitive that a microorganism would grow in a pesticide solution, which pesticide solution is designed to operate as an insecticide, a herbicide or a fungicide, such microorganisms do nonetheless. When they do, they often cause a solid precipitate to form, resulting in a loss of homogeneity in the mixture, resulting in product failure. For example, the precipitate may cause non-uniform application of the pesticide, and where, for example, the pesticide is sprayed, it may cause the plugging of strainers and nozzles used to apply the pesticide solution. Such solutions must be discarded, resulting in very substantial economic loss.

Thus, it is no small problem that is being addressed by the present invention. There is much need in the crop science art to prevent the growth of such microorganisms and to stabilize pesticide solutions, and if it were in fact the case that an obvious solution existed, one can rest assured that it would have been warmly embraced and universally applied in the art to prevent the waste and economic loss described above. That is not the case, and the loss of pesticide solutions due to microorganism growth continues to plague the art.

The Office Action seizes upon two references that describe the disinfectant nature of peracetic acid, and from that concludes that the present invention is obvious. Applicants respectfully assert this is not a fair use of the references for the following reasons.

First, neither reference contains any teaching or motivation to use peracetic acid in a pesticide solution, and both references are devoid of any suggestion of treating a pesticide solution container (or any other surface that will contact the pesticide solution) to provide the pesticide solution with resistance to the formation of microorganisms in the pesticide solution.

The fact that the CABA Abstract uses the single compound copper sulfate in combination with vofasteril as a fungicide to kill *T. faviforme*, is **not** a recognition to use peracetic acid in a **pesticide solution**. The compound copper sulfate has many uses, and it alone, in this context, cannot be said to be a "pesticide solution." lovchev et al simply made that one particular solution and apparently applied it in some fashion to *T. faviforme*, but it is not a fair reading of the CABA Abstract to imply that it broadly indicates, teaches or suggests the use of peracetic acid in a pesticide solution generally. And clearly, there is no disclosure in the CABA Abstract as to how the solution it made was applied to the *T. faviforme*, and clearly no teaching of treating the inside of a pesticide container or other surface with the biocide combination of the present invention.

Further, the CABA Abstract contains no recognition of the biocide combination of the present invention. Even if it were fair to treat lovchev et al.'s reference to copper sulfate as a reference to a pesticide (which Applicants strongly contend is not fair), the CABA Abstract combines copper sulfate only with vofasteril. In contrast, the biocide combination of the present invention includes **peracetic acid, hydrogen peroxide and water**, and that is clearly not recognized or taught by the CABA Abstract. The Office Action concludes that simply because vofasteril is present, hydrogen peroxide must also be present in equilibrium with acetic acid, but there is no teaching of this in the CABA Abstract. And, more importantly, the Office Action provides absolutely no support for that conclusion, and even if support were found, it is not at all clear that an "equilibrium" presence of hydrogen peroxide would fall in the range claimed in Claims 3, 11, and 19 where the hydrogen peroxide is present in the range of about 19 to about 25 weight percent! As explained in greater detail below, without support the Examiner has failed to establish a prima facie case of obviousness, and Applicants hereby, as they are obligated to do as explained in more detail below, demand such proof of the Examiner.

Further, because the CABA Abstract contains no fairly useable reference to a pesticide solution nor the biocide combination of the present invention, it cannot anticipate or render obvious the percentage of biocide combination in the pesticide solution as is claimed in Claims 2, 10 and 18.

It would only be armed with the present disclosure, that one through hindsight might see some connection with the CABA Abstract, and the use of hindsight is clearly impermissible on the part of the Examiner.

Kirk-Othmer is even more inapplicable. Again, not only does it fail to recognize the use of the claimed biocide combination, not only does it fail to recognize the use of that biocide combination in a pesticide solution, not only does it fail to recognize the percentage of biocide combination in the pesticide suspension as in Claims 2, 10 and 18, not only does it fail to recognize the percentage ratios of hydrogen peroxide and other elements as set forth in Claims 3, 11 and 19, and not only does it fail to recognize the use of the biocide combination in the solution, on the container or on a surface to be contacted by the pesticide, but it actually teaches **away** from the present invention.

Section 2145(X)(D)(2) and (3) respectively teach that it is **improper** to combine references where the references teach away from their combination and that proceeding contrary to accepted wisdom is evidence of non-obviousness.

Kirk-Othmer teaches on page 256 that peracetic acid is corrosive, and "degradation products **may have to be rinsed from the surface**". That is **exactly** the **opposite** of the upshot of independent Claims 25 and 33, where the intention is to treat the surfaces with the biocide combination and thereby cause the biocide combination to act to keep microorganisms from forming in the pesticide solution.

Further, Kirk-Othmer teaches on page 256 an aqueous solution of peracetic acid, hydrogen peroxide, acetic acid, sulfuric acid, water and a stabilizing agent. The last line of page 256 states that "**all** of these ingredients are **necessary** to keep it stable in storage". If one follows the teaching of Kirk-Othmer, one would be taken to the conclusion that the biocide combination of the present invention simply will not work and would be unstable, because it includes **only** peracetic acid, hydrogen peroxide and water!

At a fundamental level, Applicants are concerned that the Office Action misses the basic points of the present invention. These include that stable pesticide solutions, free of microorganism growth have long be desirable in the crop science industry, and if the answers were easy and obvious this problem would have been solved long ago. Even Applicants admit in the specification that attempts have been made to produce stable pesticide solutions free of microorganism growth (see the Background of the Invention in the specification, particularly page 2, lines 19-24). But as pointed out at page 2, line 25 through page 3, line 2, the problem is that not all preservatives are effective against all microorganisms in all pesticide solutions. The development of the biocide combination of the present invention, and the appreciation of its use in a pesticide solution with these particular pesticides, and the appreciation of its use on a container housing the pesticide or its use on a surface that will come in contact with the pesticide solution, and the appreciation of the relative proportions of its components and an appreciation of the proper proportion of the biocide combination to be used in a pesticide solution -- all represent useful, novel and unobvious advance over the prior art.

Respectfully, Applicants assert that absent hindsight through the present application, neither reference suggests or teaches the present invention, and only teach general scientific principals, e.g. that peracetic acid kills certain bacteria. See, for example, the case of In re Brouwer, 37 USPQ2d 1663 (CAFC 1996), where the Court of Appeals for the Federal Circuit (CAFC) agreed with appellant's argument that the Board of Patent Appeals and Interferences had erred when the Board affirmed the Examiner, by treating appellant's disclosure as prior art in affirming the Examiner's rejection under 35 U.S.C. 103(a). See the paragraph bridging pages 1665 and 1666 in In re Brouwer, supra. See also In re Kuehl, 177 USPQ 250 (CCPA 1973), at page 253, in which the U.S. Court of Customs and Patent Appeals agreed that assuming the existence as prior art of appellants' discovery is a fatally defective position to take. The mere fact that a process utilizes a known scientific principle, does not make that process obvious. See In re Brouwer, supra, at page 1666, wherein the Court of Appeals, Federal Circuit stated:

Although the prior art references the examiner cited teach a generic chemical reaction of a compound containing an active methylene group with an ester of vinylsulfonic acid, we have made clear that "the mere fact a device or process

utilizes a known scientific principle does not alone make that device or process obvious."

In particular, Applicants respectfully caution the Examiner that the Examiner must be even more careful in this case as it is not the combination of the CABA Abstract with the Kirk-Othmer reference that was used to reject the claims, but where, rather, the Examiner asserts each **independently** of the other and then asserts that "one skilled in the art" would be able to "fill in the gaps" to arrive at the present invention. The CAFC has recently heavily criticized the U.S. Patent Office for making such blanket, **unsupported** assertions about what "one skilled in the art" knows or doesn't know.

In preparing the response to these rejections, the undersigned reviewed Sections 2141 through 2146 of the Manual of Patent Examining Procedure (hereinafter "MPEP"), and would like to call certain directions and admonitions contained therein to the Examiner's attention as the undersigned believes they are applicable in the present case.

MPEP Section 2145 (X)(C) makes it abundantly clear that there must be some suggestion or motivation **in the references themselves or in the knowledge generally available to one of ordinary skill** in the art to modify or combine reference teachings, noting that the CAFC has overturned many obviousness determinations due to a lack of suggestion in the prior art of the desirability of modifying or combining the references to obtain the present invention. As noted in MPEP Section 2143.01, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed Cir 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed Cir. 1992). Applicants note further, that as stated in MPEP Section 2142, there must be some motivation in the art for the combination of references to render an invention obvious.

Even if the art discloses generally the concept that peracetic acid is a disinfectant, this bare concept cannot fairly be used by the Examiner to springboard to the present invention. There is no motivation in either the CABA Abstract nor the

Kirk-Othmer reference to make the pesticide of the present invention, so support **cannot come from the references** for the claimed process of inhibiting growth of microorganisms in a pesticide solution. Therefore, it must be that the Examiner is relying upon the "knowledge generally available" arm of MPEP Section 2142 to support the claim rejection.

If that is the case, Applicants respectfully assert that the Office Action has not met the Examiner's obligation of establishing a prima facie case of obviousness because there is no teaching, motivation or suggestion in either reference to arrive at the instantly claimed process for inhibiting microorganism growth in a pesticide solution, because the Examiner has no support for statements regarding what one skilled in the art would or would not know, in violation of In re Lee, as discussed in detail below. It is only through impermissible hindsight using the Applicants' specification as a guide that one would be motivated to use the references in this way. (MPEP Section 2142 states that "the tendency to resort to "hindsight" based upon applicant's disclosures is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.")

When the Examiner is relying on knowledge generally available to one of ordinary skill in the art, MPEP Section 2144.03 states that if Applicant traverses such an assertion, and Applicants certainly do in this case, the Examiner must cite a reference in support of his or her position. Applicants hereby request such a reference. If the Examiner is relying on facts within his personal knowledge, Applicants respectfully request and are calling for, as they must, pursuant to MPEP Section 2144.03 and 37 C.F.R. Section 104, that the Examiner support such facts by an Affidavit.

Applicants respectfully caution the Examiner about making conclusory statements not supported by objective evidence. As set forth in the very recent case of In re Lee, 61 USPQ2d 1430 (CAFC January 18, 2002):

As applied to the determination of patentability *vel non* when the issue is obviousness, "it is fundamental that rejections under 35 U.S.C. §103 **must be based on evidence** comprehended by the language of that section." *In re*

v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966) and extensive ensuing precedent. The patent examination process centers on prior art and the analysis thereof. When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. See, e.g., *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008(Fed. Cir. 2001) ("the central question is whether there is reason to combine [the] references," a question of fact drawing on the *Graham* factors).

"The factual inquiry whether to combine references must be thorough and searching." *Id.* It must be based on objective evidence of record.

This precedent has been reinforced in myriad decisions, and cannot be dispensed with. See, e.g., *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 USPQ2d 1456, 1459 (Fed. Cir. 2000) ("a showing of a suggestion, teaching, or motivation to combine the prior art references is an `essential component of an obviousness holding'") (quoting *C.R. Bard, Inc., v. M3 Systems, Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232(Fed. Cir. 1998)); *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617(Fed. Cir. 1999) (**"Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references."**); *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637(Fed. Cir. 1998) (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600(Fed. Cir. 1988) ("teachings of references can be combined *only* if there is some suggestion or incentive to do so.") (emphasis in original) (quoting *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933(Fed. Cir. 1984)).

The need for specificity pervades this authority. See, e.g., *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317(Fed. Cir. 2000) (**"particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed"**); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459(Fed. Cir. 1998) ("even when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination.

In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious."; *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783(Fed. Cir. 1992) (**the examiner can satisfy the burden of showing obviousness of the combination "only by showing some objective teaching in the prior art or that**

knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references”).

[2] With respect to Lee's application, neither the examiner nor the Board adequately supported the selection and combination of the Nortrup and Thunderchopper references to render obvious that which Lee described. **The examiner's conclusory statements** that “the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software” and that “another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial” **do not adequately address the issue of motivation to combine. This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to “[use] that which the inventor taught against its teacher.” W.L. Gore v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983). Thus the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion.**

....
Conclusory statements such as those here provided do not fulfill the agency's obligation. This court explained in *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697, that **“deficiencies of the cited references cannot be remedied by the Board's general conclusions about what is ‘basic knowledge’ or ‘common sense.’”** The Board's findings must extend to all material facts and must be documented on the record, lest the “haze of so-called expertise” acquire insulation from accountability. “Common knowledge and common sense,” even if assumed to derive from the agency's expertise, **do not substitute for authority** when the law requires authority.

....
The determination of patentability on the ground of unobviousness is ultimately one of judgment. In furtherance of the judgmental process, the patent examination procedure serves both to find, and to place on the official record, that which has been considered with respect to patentability. The patent examiner and the Board are deemed to have experience in the field of the invention; however, this experience, insofar as applied to the determination of patentability, must be applied from the viewpoint of “the person having ordinary skill in the art to which said subject matter pertains,” the words of section 103. In finding the relevant facts, in assessing the significance of the prior art, and in making the ultimate determination of the issue of obviousness, the examiner and the Board are presumed to act from this viewpoint. **Thus when they rely on what they assert to be general knowledge to negate patentability, that knowledge must be articulated and placed on the record.** The failure to do so is not consistent with either

effective administrative procedure or effective judicial review. The board cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies.

Emphasis Added.

Applicant's add that a reference simply illustrating that peracetic acid is a disinfectant (Kirk-Othmer) or, worse yet, a mere abstract that illustrates that T faviforme is sensitive to various disinfectants (the CABA Abstract), - without one other supporting material - is quite insufficient in Applicants' opinion, to support the conclusion that one skilled in the art would read these two references and arrive at a process for inhibiting growth of microorganisms in a pesticide solution, or to use the biocide composition of the present invention in a container or on a surface, or, for that matter, to even support the proposition that one skilled in the art would even know to go to the Kirk-Othmer and CABA Abstract when trying to find a process for preventing microorganism growth in a pesticide solution.

As noted in MPEP Section 2142, the Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness, and if such a prima facie case is not produced, Applicant is under no obligation to submit evidence of non-obviousness. Applicants respectfully remind the Examiner that the initial burden is on the Examiner to establish a prima facie case as set forth in MPEP Section 2142, and that mere unsupported assertions by the Examiner will not suffice, as set forth in that same section, and that Applicants are entitled to a presumption that their invention will work as claimed and described (see MPEP Section 2164.04).

Applicants point out that MPEP Section 2143.03 states that to establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In the present case, neither reference has been shown by the Examiner to lead to the claimed process for inhibiting growth of microorganisms in a pesticide solution, nor does either reference disclose the treatment of the interior of a pesticide solution container or treatment of any other surface (e.g. in a plant or other manufacturing facility) to prevent the growth of microorganisms in a pesticide solution.

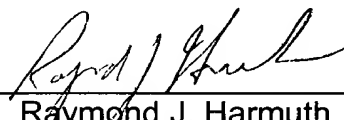
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Applicants also point out that MPEP Section 2143.01 points out that if the applicant's proposed modification or combination of the prior art would **change the principle of operation of the prior art invention being modified**, then the teachings of the references are **not** sufficient to render the claims prima facie obvious, citing *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). In the *Ratti* case, the novel oil seal worked on a principle of resiliency as it pushed outward to seal, as opposed to a prior art seal that was reinforced by a cylindrical sheet metal casing and relied upon rigidity to be effective in its operation. In the present case, Kirk-Othmer directs one to rinse any surfaces in contrast to Claims 25 and 33, and further Kirk-Othmer teaches on page 256, in an aqueous solution of peracetic acid, hydrogen peroxide, acetic acid, sulfuric acid, water and a stabilizing agent, "**all** of these ingredients are **necessary** to keep it stable in storage". These principles are in contrast to those of operation of the present invention where coating a surface with the biocide combination and leaving the biocide combination on the surface when the pesticide solution is introduced is desired, and where the biocide composition is shown to work without all of the components Kirk-Othmer said were required.

New claims 25-40 have been added to claim the invention in more varying scope. Support for Claims 25-40 may be found, among other places, at page 6, lines 8-11.

Applicant respectfully suggests that the present invention is a useful, novel unobvious advance over the art. In light of the foregoing remarks, review and reconsideration and allowance of the Claims 1-40 are respectfully requested.

Respectfully submitted,

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VERSION MARKED TO SHOW CHANGES

As explicitly set forth in **37 C.F.R. Section 1.121(c)(1)(ii)**, **last sentence**, a marked up version does not have to be supplied for an added claim or a cancelled claim as it is sufficient to state that a particular claim has been added, or cancelled, and this has been so stated in the Amendment.

In particular, in this case, claims 25-40 have been newly added.